

IN THE CLAIMS:

1. (Currently Amended) A substantially purified nucleic acid molecule that encodes a maize or soybean ~~carbon assimilation pathway~~ ~~ribulose-bisphosphate carboxylase~~ enzyme or fragment thereof, ~~wherein said maize or soybean carbon assimilation pathway~~ ~~enzyme is selected from the group consisting of:~~

(a) ~~ribulose-bisphosphate carboxylase;~~

(b) ~~phosphoglycerate kinase;~~

(c) ~~glyceraldehyde 3-phosphate dehydrogenase;~~

(d) ~~putative glyceraldehyde 3-phosphate dehydrogenase;~~

(e) ~~triose phosphate isomerase;~~

(f) ~~aldolase;~~

(g) ~~fructose 1,6-bisphosphatase;~~

(h) ~~transketolase;~~

(i) ~~putative transketolase;~~

(j) ~~sedoheptulose 1,7-bisphosphatase;~~

(k) ~~D-ribulose 5-phosphate 3-epimerase;~~

(l) ~~ribose 5-phosphate isomerase;~~

(m) ~~putative ribose 5-phosphate isomerase;~~

(n) ~~ribose 5-phosphate kinase;~~

(o) ~~phosphoenolpyruvate carboxylase;~~

(p) ~~NADP-dependent malate dehydrogenase;~~

(q) ~~aspartate aminotransferase;~~

(r) ~~putative aspartate aminotransferase;~~

(s) ~~alanine aminotransferase;~~

(t) ~~NADP-dependent malic enzyme;~~

(u) ~~NAD-dependent malic enzyme;~~

(v) ~~PEP carboxykinase;~~

(w) ~~putative PEP carboxykinase;~~

(x) ~~pyruvate, phosphate dikinase; and~~

(y) ~~pyrophosphatase.~~

wherein said nucleic acid molecule comprises the sequence of SEQ ID NO: 5 or complement thereof.

23. (New) A substantially purified nucleic acid molecule comprising a nucleic acid sequence of SEQ ID NO: 5 or complement thereof.
24. (New) A substantially purified nucleic acid molecule consisting of a nucleic acid sequence of SEQ ID NO: 5 or complement thereof.
25. (New) A substantially purified nucleic acid molecule comprising a nucleic acid sequence having between 100% and 90% sequence identity with a nucleic acid sequence of SEQ ID NO: 5 or complement thereof.
26. (New) The substantially purified nucleic acid molecule of claim 25, wherein said nucleic acid molecule comprises a nucleic acid sequence having between 100% and 95% sequence identity with a nucleic acid sequence of SEQ ID NO: 5 or complement thereof.
27. (New) The substantially purified nucleic acid molecule of claim 26, wherein said nucleic acid molecule comprises a nucleic acid sequence having between 100% and 98% sequence identity with a nucleic acid sequence of SEQ ID NO: 5 or complement thereof.
28. (New) The substantially purified nucleic acid molecule of claim 27, wherein said nucleic acid molecule comprises a nucleic acid sequence having between 100% and 99% sequence identity with a nucleic acid sequence of SEQ ID NO: 5 or complement thereof.